

## CLAIMS

We claim:

1. A targeting construct comprising:
  - 5 (a) a first polynucleotide sequence homologous to a platelet-activating factor receptor gene;
  - (b) a second polynucleotide sequence homologous to the platelet-activating factor receptor gene; and
  - (c) a selectable marker.
- 10 2. The targeting construct of claim 1, wherein the targeting construct further comprises a screening marker.
3. A method of producing a targeting construct, the method comprising:
  - 15 (a) providing a first polynucleotide sequence homologous to a platelet-activating factor receptor gene;
  - (b) providing a second polynucleotide sequence homologous to the platelet-activating factor receptor;
  - (c) providing a selectable marker; and
  - (d) inserting the first sequence, second sequence, and selectable marker into a vector, to produce the targeting construct.
- 20 4. A method of producing a targeting construct, the method comprising:
  - (a) providing a polynucleotide comprising a first sequence homologous to a first region of a platelet-activating factor receptor gene and a second sequence homologous to a platelet-activating factor receptor gene;
  - (b) inserting a positive selection marker in between the first and second sequences
  - 25 to form the targeting construct.
5. A cell comprising a disruption in a platelet-activating factor receptor gene.
6. The cell of claim 5, wherein the cell is a murine cell.
7. The cell of claim 6, wherein the murine cell is an embryonic stem cell.
8. A non-human transgenic animal comprising a disruption in a platelet-activating factor receptor gene.
- 30 9. A cell derived from the non-human transgenic animal of claim 8.

See 17

5

10

15

20

25

30

10. A method of producing a transgenic mouse comprising a disruption in a platelet-activating factor receptor gene, the method comprising:
  - (a) introducing the targeting construct of claim 1 into a cell;
  - (b) introducing the cell into a blastocyst;
  - (c) implanting the resulting blastocyst into a pseudopregnant mouse, wherein said pseudopregnant mouse gives birth to a chimeric mouse; and
  - (d) breeding the chimeric mouse to produce the transgenic mouse.
11. A method of identifying an agent that modulates the expression of a platelet-activating factor receptor, the method comprising:
  - (a) providing a non-human transgenic animal comprising a disruption in a platelet-activating factor receptor gene;
  - (b) administering an agent to the non-human transgenic animal; and
  - (c) determining whether the expression of platelet-activating factor receptor in the non-human transgenic animal is modulated.
12. A method of identifying an agent that modulates the function of a platelet-activating factor receptor, the method comprising:
  - (a) providing a non-human transgenic animal comprising a disruption in a platelet-activating factor receptor gene;
  - (b) administering an agent to the non-human transgenic animal; and
  - (c) determining whether the function of the disrupted platelet-activating factor receptor gene in the non-human transgenic animal is modulated.
13. A method of identifying an agent that modulates the expression of platelet-activating factor receptor, the method comprising:
  - (a) providing a cell comprising a disruption in a platelet-activating factor receptor gene;
  - (b) contacting the cell with an agent; and
  - (c) determining whether expression of the platelet-activating factor receptor is modulated.
14. A method of identifying an agent that modulates the function of a platelet-activating factor receptor gene, the method comprising:

